

Mineral Industry Surveys

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MANUFACTURED ABRASIVES IN THE FOURTH QUARTER 2004

The U.S. Geological Survey (USGS) collects quarterly data on manufactured abrasives through its survey of producers. Manufactured abrasives included in this report are fused aluminum oxide, silicon carbide, and metallic abrasives. Where indicated, Canadian and United States data are combined to protect proprietary information. Except where noted, the quantities cited in this report are in metric units. All unit value calculations in this report are based on unrounded data.

Fused Aluminum Oxide

The total production during the fourth quarter of 2004 was estimated to be 5,000 metric tons of regular-grade crude fused aluminum oxide with an estimated value of \$1.5 million. Only one company, which operates one plant in Canada, produced fused aluminum oxide. This total production figure has been rounded to the nearest 5,000 tons to avoid disclosing proprietary data.

According to the U.S. Census Bureau, U.S. imports of crude fused aluminum oxide through November 2004 were 175,000 tons valued at \$48.3 million, or an average of \$276 per ton. About 83% of the imports came from China, 10% from Canada, 6% from Venezuela, and about 1% from other countries. Imports of crude fused aluminum oxide from China may not all be abrasive-quality material.

U.S. imports of refined and ground fused aluminum oxide through the month of November 2004 reached 46,000 tons valued at \$42.7 million, or an average of \$929 per ton. The top five sources of the refined and ground imports were Germany (21%), Brazil (17%), Austria (13%), Canada (10%) and Venezuela (9%).

U.S. exports of fused aluminum oxide through November 2004 were 12,900 tons. The exports were valued at \$37.8 million, or \$2,930 per ton. Germany received 33% of the exports that were shipped; Canada 24%, Mexico 16%, Japan 9%, Republic of Korea 7%, and others 11%.

The Department of Defense stores fused aluminum oxide in the National Defense Stockpile (NDS), but all of the NDS aluminum oxide has been authorized by law for disposal. During the fourth quarter of 2004, the Department of Defense

did not have any sales of fused aluminum oxide abrasive grain. NDS reported that 8,290 tons of fused aluminum oxide abrasive grain with an estimated value of \$3.1 million remained in the stockpile. The NDS has sold all of the crude fused aluminum oxide in the stockpile (Janet Rollins, Defense National Stockpile Center, oral commun., 2005). No further stockpiling of crude fused aluminum oxide by the Department of Defense is anticipated. If the current authorized disposal rate and NDS sales schedules are continued, all of the stockpiled fused aluminum oxide abrasive grain could be sold by the end of 2006.

Silicon Carbide

Abrasive-grade silicon carbide is produced by one company in the United States. The total production during the fourth quarter of 2004 was estimated to be 10,000 tons of abrasive-grade silicon carbide with an estimated value of \$4.9 million. This total production figure has been rounded to the nearest 5,000 tons to avoid disclosing proprietary data.

Total U.S. imports of crude silicon carbide for the year through November 2004 were 156,000 tons valued at \$66.1 million; imports from China alone were 67,600 tons valued at \$26.3 million. The average price of imported crude silicon carbide, excluding Chinese crude, was \$390 per ton; the average price of Chinese crude was \$448 per ton. U.S. imports of refined and ground silicon carbide for the same period were 41,500 tons valued at \$45.4 million, or an average of \$1,100 per ton. During the period, China accounted for 57% of the crude material and 35% of the refined and ground material.

U.S. exports of crude silicon carbide through November 2004 were reported to be 3,380 tons with a value of \$4.89 million. Exports of refined and ground silicon carbide were 9,580 tons valued at \$8.33 million. About 95% of the crude material was shipped to, in decreasing order, Norway, Japan, and Mexico. About 93% of the refined material went to, in decreasing order, Canada, Mexico, and the United Kingdom.

The NDS has sold all of the silicon carbide in the stockpile. No further stockpiling is anticipated.

Metallic Abrasives

Metallic abrasives information was collected from 12 companies operating 14 U.S. plants. During the fourth quarter of 2004, four companies produced 46,600 tons of steel shot and grit, an increase of 11%, compared with the same period in 2003. At least one of the companies produced shot and grit from reclaimed material. Total fourth quarter production was valued at \$21.3 million, or an average of \$457 per ton. Total annual production in 2004 was 193,000 tons valued at \$87.8 million; 2003 production was 192,000 tons valued at \$86.2 million; 2002 production was 201,000 tons valued at \$91 million.

Shipments of steel shot and grit in the fourth quarter of 2004 were 45,900 tons valued at \$21.1 million, or an average of \$458

per ton, compared with shipments during the fourth quarter of 2003, which were 46,600 tons valued at \$21.4 million for an average of \$459 per ton.

During the fourth quarter six companies produced 297 tons other types of metallic shot and grit (primarily cut wire shot) valued at \$1.07 million.

Imports of all types of metallic shot and grit through November 2004 were 14,400 tons valued at \$8.55 million for an average of \$593 per ton. Canada was the largest supplier, accounting for 70% of the tonnage imported.

Exports of all types of metallic abrasives through November 2004 were 24,800 tons valued at \$18.9 million, or an average of \$764 per ton. Shipments to Mexico accounted for 50% of the exports; an additional 44% was shipped to Canada.

TABLE 1
MANUFACTURED ABRASIVES¹

(Metric tons, unless otherwise specified)

Source and product	2003		2004							
	Fourth quarter		First quarter		Second quarter		Third quarter		Fourth quarter	
	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)
United States and Canada, production: ²										
Silicon carbide ³	10,000	\$4,900	10,000	\$5,300	10,000	\$5,300	10,000	\$4,900	10,000	\$4,900
Crude aluminum oxide, regular-grade	(4)	(5)	(4)	(5)	(4)	(5)	5,000	1,500	5,000	1,500
United States, production:										
Steel shot and grit	42,100	18,800	46,400	21,000	49,100	22,300	50,900	23,200	46,600	21,300
Other shot and grit ^{e, 6}	345	1,250	242	783	318	1,040	406	1,360	297	1,070
Total	42,400	20,000	46,700	21,700	49,400	23,300	51,300	24,600	46,900	22,300
United States, shipments:										
Steel shot and grit	46,600	21,400	51,600	24,400	53,300	24,900	48,900	22,300	45,900	21,100
Other shot and grit ^{e, 6}	323	1,320	341	1,260	340	1,250	357	1,290	273	950
Total	46,900	22,700	52,000	25,700	53,600	26,100	49,300	23,600	46,200	22,000

^eEstimated.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Quantities are rounded to the nearest 5,000 tons to avoid disclosing proprietary data; values are estimated.

³Includes materials for metallurgical uses and other applications.

⁴Less than 2,500 tons.

⁵Less than \$500,000.

⁶Includes cut wire shot and reclaimed shot and grit from primary producers.